

NEW CALIFORNIA PLECOPTERA

STEPHEN HITCHCOCK

University of California, Berkeley

In the course of collecting stoneflies for the past several years in California the following new species have been discovered. I would especially like to acknowledge the help of Mr. Stanley G. Jewett, Jr., who kindly consented to examine this and other material.

***Capnia quadrituberosa* Hitchcock, new species**

Male.—Length of body 6.5 mm., general color in alcohol brown, in lighter colored specimens there appear a row of darker spots on each of abdominal tergites 1–8. Pronotum embossed. Wings of normal length, uniformly hyaline, venation typical of genus. First seven abdominal segments without special structures. Eighth tergite with membranous area in distal half of sclerite and a pair of tubercles on posterior edge of sclerite. Ninth tergite with middle area membranous except at extreme anterior margin, pair of prominent lobes directed posteriorly at distal margin of tergite. Tenth tergite membranous medially. Supra anal process (epiproct) rather short, extending to posterior margin of ninth tergite, forked at tip, shaped as in figure 1.

Female.—Length of body 7.5 mm., general features typical of genus. Eighth abdominal sternite with posterior margin of subgenital plate slightly produced and with sclerotization as in figure 3.

This species appears closest to *Capnia umpqua* Frison but differs in the number and position of protuberances on the abdominal tergites. It also differs in the shape and size of the supra anal process. The nymphs of the two species appear very much alike.

Holotype male and allotype female and seven male and one female paratypes, SMALL STREAM TRIBUTARY TO FEATHER RIVER CROSSING ROUTE 40A NORTH OF OROVILLE, CALIFORNIA, January 22, 1955. The holotype and allotype have been deposited in the collection of the California Academy of Sciences, paratypes in the collections of the author and Stanley G. Jewett, Jr.

***Leuctra divisa* Hitchcock, new species**

Male.—Length 6 mm., general color in alcohol brown, head darker in color, pronotum patterned. General form and wing venation typical of genus. No processes on abdominal tergites. Ninth abdominal sternite with vesicle (ventral lobe), ninth sternite projecting posteriorly. Paraprocts (titillator) fused, extending obliquely up and back, slightly enlarged at distal end. Ninth tergite indented anteriorly. Tenth tergite indented on posterior margin and divided longitudinally. A pair of sclerites extending

in from base of each cercus and attached to posterior edge of tenth tergite by membranous area. A pair of triangular shaped sclerites on each side of supra anal process. Supra anal process (epiproct) tucked underneath and behind tenth tergite. Cerci fairly long, lightly sclerotized, with numerous long hairs on outer surface.

This species probably represents a new subgenus in the genus *Leuctra*. It can be separated from other North American species by the presence of a vesicle, lack of processes on abdominal tergites, shape of cerci, shape of tenth tergite, and the fused paraprocts. The shape of the tenth tergite somewhat resembles that of *Leuctra infusata* but the latter does not have the tenth tergite completely bisected and differs in several other respects.

Stanley G. Jewett, Jr., has informed me (personal communication) that he has a single female leuctrid from Lagunitas, Marin County, California, which may be the female of this species. It has a peculiar tongue-like protrusion of the sub-genital plate.

Further placing of this species will depend on new collections.

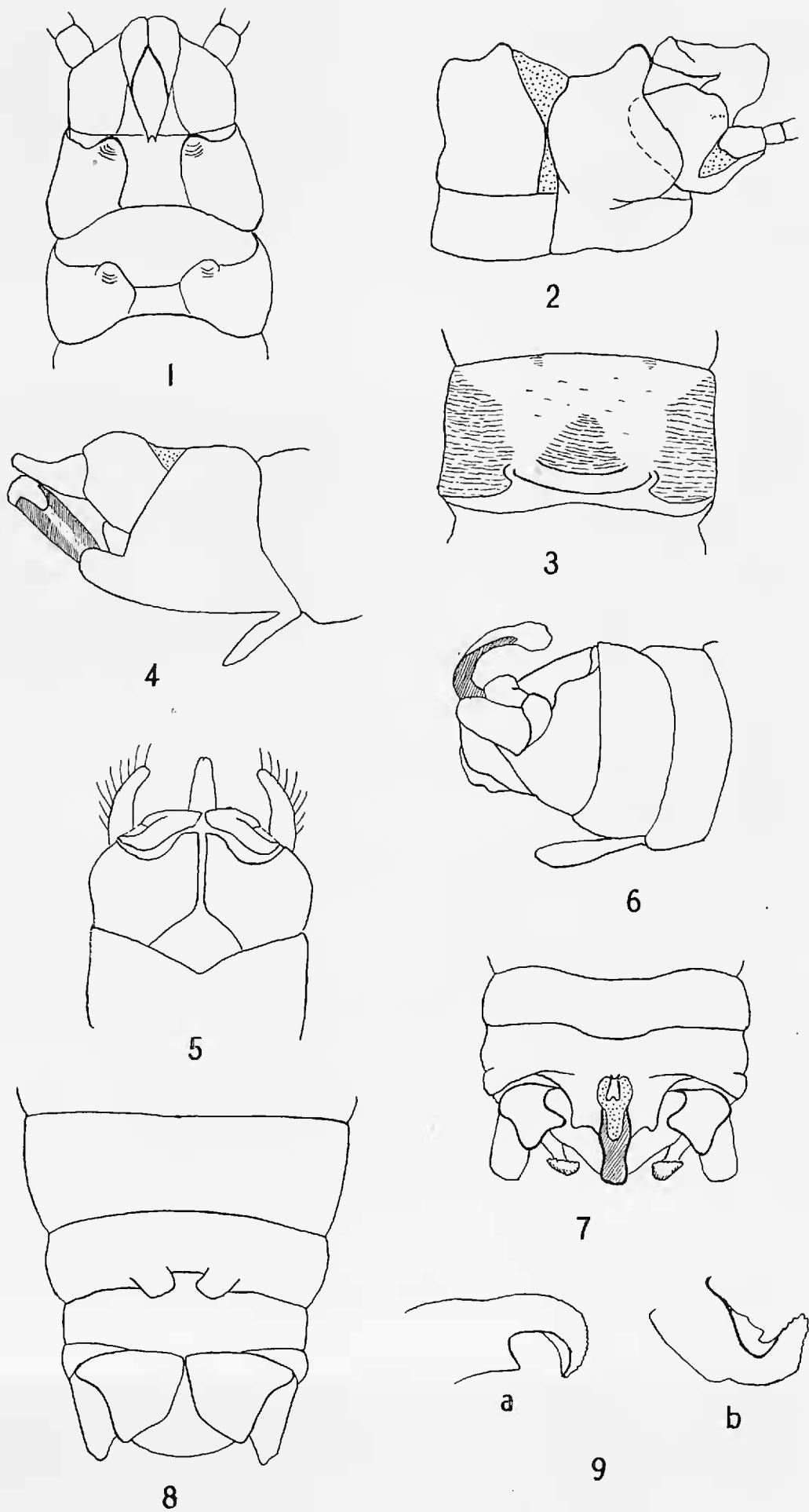
The holotype male is from WOODACRE, MARIN COUNTY, CALIFORNIA, April 14, 1956, and has been deposited in the collection of the California Academy of Sciences.

Nemoura marionae Hitchcock, new species

Male.—Length of body 6 mm. Scape and pedicel light colored, rest of antennae dark, labrum light with sides dark, color pattern of head varying between specimens, pronotum with dark longitudinal band on each side of midline, prescutum of mesothorax dark on anterior edge, mesonotum with dark band on each side of midline which has a light colored triangular spot with its apex reaching the posterior margin and base resting on anterior margin; metanotum dark with light stripe on midline, abdomen light brown; femora with dark band just before distal end, tibia with dark band at proximal end; last two tarsal segments dark. Remnants of two pairs of cervical gills. Wings hyaline. Vesicle (ventral lobe) at base of ninth sternite. Genitalia as in figures 6 and 7; lobe present at base of cercus; supra anal process (epiproct) membranous at tip with a roughly triangular shaped sclerotized piece with a notch at apex; paraprocts (subanal lobes) curved with an included pocket and roughened edge at tip, figure 9.

EXPLANATION OF FIGURES

Fig. 1, *Capnia quadrituberosa* male genitalia, dorsal. Fig. 2, *Capnia quadrituberosa* male genitalia, lateral. Fig. 3, *Capnia quadrituberosa* female eighth sternite, ventral. Fig. 4, *Leuctra divisa* male genitalia, lateral. Fig. 5, *Leuctra divisa* male genitalia, dorsal. Fig. 6, *Nemoura marionae* male genitalia, lateral. Fig. 7, *Nemoura marionae* male genitalia, dorsal. Fig. 8, *Nemoura marionae* female sternites. Fig. 9a and b, *Nemoura marionae* subanal lobes of male paratypes.



Female.—Length of body 8 mm., general shape and color as in male. Eighth sternite with two short truncate lobes as in figure 8.

The female genitalia appears somewhat like that of *Nemoura venusta* Banks and so would be in the subgenus *Amphinemura* Ris. However, the male has a lobe at the base of the cercus as in the subgenus *Malenka* Ricker. There seems to be a more definite color pattern than in many *Nemoura* but the exact pattern will vary between specimens.

The male epiproct sometimes may be withdrawn down and in so that it is not visible.

This species has been found only by a small brook emerging from a spring and flowing into Sagehen Creek near Hobart Mills, California. Although no specimens were found mating in nature, a live male and female placed in a large bottle assumed the mating position in a very short time. There were no other *Nemoura* with branched cervical gills present at the time. The male holotype was captured August 9, 1955 and the female allotype, July 26, 1955. The holotype and allotype will be placed in the collection of the California Academy of Sciences. Paratypes collected July 26, 1955 and August 9–10, 1955 are in the collections of Dr. William E. Ricker, Mr. Stanley G. Jewett, Jr., and the author.

In addition to the above new species, it may also be of interest to record the following species found in California for the first time:

Nemoura producta Claassen was collected in Marin County north of San Francisco and this would appear to be the southern most extension of its distribution down the Coastal Range of California from the Coast and Cascade Mountains to the north.

Alloperla delicata Frison was captured in Sierra County and although this is its first recorded capture in California, it has been found in nearby states.

Capnia columbiana Claassen collected in Nevada County also has a distributional range of nearby states.

Capnia lineata Hanson was collected by Jon Herring in Santa Clara County. This species, identified by Mr. Stanley G. Jewett, Jr., represents the first specimens collected since the types. It was known previously only from Idaho.